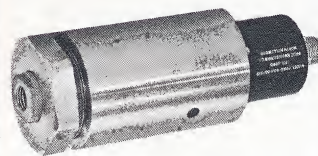


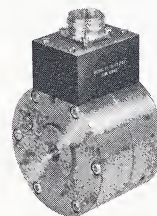
PACE

VARIABLE RELUCTANCE TRANSDUCERS



Model P96
Range 0 to 50,000 psi.

Pressure Transducers that can take it. Ranges as low as 1 inch of water and as high as 50,000 psi.



Model P90
Range: ± 1 inch water, full scale.

PACE *engineering company*

13035 Satcoy Street
TWX 213-765-5299

North Hollywood, California
TRiangle 7-0727

Theory and Operation of Variable Reluctance Transducers

Pace diaphragm type pressure transducer designs are based on the magnetic reluctance principle and offer a number of advantages in pressure measurement and control. These include:

1. Excellent dynamic response characteristics with liquid as well as gas systems due to high natural frequency, low volumetric displacement, and low internal volume.
2. Ability to accept corrosive liquids and gases on both sides for differential pressure measurement without isolation of a pickoff mechanism.
3. Extreme overload tolerance — operator proof.
4. Ability to withstand severe shock and vibration.
5. High level DC Output with unregulated 115 VAC or 28 VDC excitation using simple, self-contained solid-state circuitry.

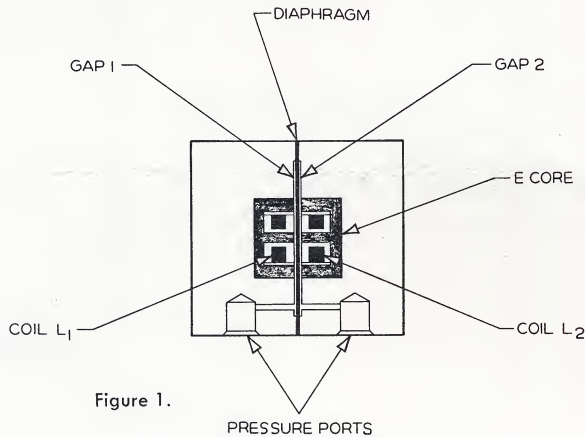


Figure 1.

In a Pace pressure transducer, shown in simplified form in Figure 1, a diaphragm of magnetically permeable stainless steel is clamped between two blocks, and deflects when pressure difference is applied through the ports illustrated. An E core and coil assembly is embedded in each block with a small gap between the diaphragm and the E core, in a symmetrical arrangement resulting in a condition of equal inductance with the diaphragm in an undeflected position. Diaphragm deflection results in an increase in gap in the magnetic flux path of one core, and equal decrease in the other. The magnetic reluctance varies with the gap, determining the inductance value, so that the effect of the diaphragm motion is a change in inductance of the two coils, one increasing and the other decreasing.

A simple bridge circuit for converting coil inductance ratio to DC output voltage is illustrated in Figure 2. Transducer

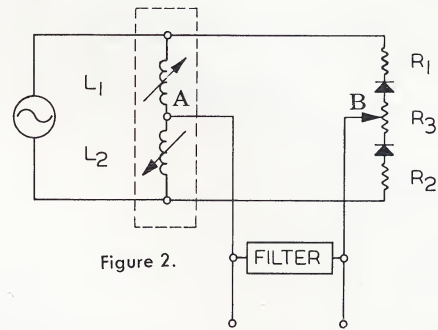


Figure 2.

coils L_1 and L_2 constitute two arms of the bridge, and resistance R_1 and R_2 the other two arms. The diodes in the resistive voltage divider (shown in Figure 2) permit the bridge to operate only on half cycles (Figure 3). During one half cycle the diodes conduct, establishing a potential at point B. During the other half cycle, the diodes do not conduct, and there is no output. Thus the output is half-cycle pulses. When the voltage at point A equals that at point B, the output is zero. When the potential at A is greater than at B, the output has one polarity (+); when A is less than B, the output polarity reverses (-). In typical pressure transducers, $\Delta L / (L_1 + L_2)$ is usually 5% at full scale, and the corresponding output voltage is 50mv per volt of excitation.

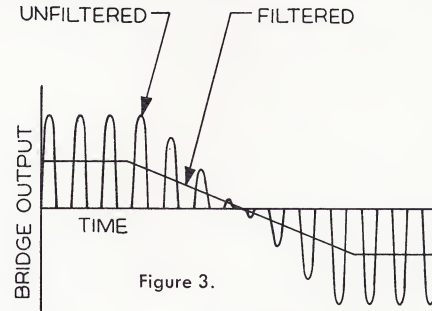


Figure 3.

More elaborate systems utilizing full wave demodulation and carrier amplification are used in many applications to achieve greater output. Carrier-Demodulators of the CD Series (described in this catalog) are typical. With the solid state circuitry used, these systems are sufficiently small and rugged to be included with the pressure transducer, within the instrument case, as illustrated in the CP DC Output Pressure Transducer Series.

TRANSDUCER SIGNAL CONDITIONING EQUIPMENT



**MODEL CD10 DC OUTPUT
CARRIER-DEMODULATOR**

A small Carrier-Demodulator, designed for operation on 95-125 Volts, 60 cps at 5 watts, the Model CD10 operates with PACE Variable Reluctance Pressure Transducers in DC systems. Transistorized for reliability, it is compact (may be mounted inside many recorders) and provides an output of 0-10 VDC (0-2.5 ma maximum current) or ± 10 VDC full scale. Transducer excitation is 5 Volts at 5 K cps. Frequency response is flat $\pm 5\%$, 0-1,000 cps. Regulated against input voltage variation, it operates reliably over an ambient temperature range of 40°F to 120°F. Long term stability is $\pm 1/2\%$. Weight is 18 ounces and Size is 3 1/4" wide x 3" deep x 5 1/4" long.



**MODEL CD17
CARRIER-DEMODULATOR**

The Model CD17 Miniature Carrier-Demodulator operates on unregulated 22-32 VDC at 20 ma with Pace Transducers to provide a 0-5 or ± 5 VDC full scale output for voltage controlled telemetry and other DC systems. Transducer excitation is 5 Volts at 5 K cps. Frequency response is flat $\pm 5\%$, 0-1,000 cps. Encapsulation in a small, lightweight aluminum case assures reliable performance under extreme shock and vibration. Static acceleration is 100 g. Ambient temperature range is -65°F to +250°F. Weight is 4 ounces and Size is 1 1/2" dia. x 3 3/8" overall length.

Multi-channel systems available. Write for information.

AC OUTPUT TRANSDUCERS

Interchangeable diaphragms are available for range change in most transducer models.

SPECIFICATIONS

Linearity: $\pm 1/2\%$ best Straight line.
Hysteresis: $\pm 1/4\%$ Pressure excursion.
Accuracy: $\pm 1/2\%$ Full scale, nominal.
Overpressure: 200 psi or 200% of range, whichever is greater.
Zero shift with line pressure (differential models): Less than 1% full scale.
Output: 50mv/v full scale at 3,000 psi.
Inductance: 20 mh nominal, each coil, zero balance within 10% full scale.
Excitation: 1,000-20,000 cps with 20 mh coils, 30 volts max. at 3,000 cps. Coils available for 400 cps and other frequency requirements.
Pressure Media: Corrosive liquids and gases — Both sides on differential models.
Pressure Cavity: 416 Stainless Steel, standard. Other materials available.

Temperature: Ambient range -423° to $+250^{\circ}$ F. Zero shift coefficient within 0.01% of full scale per $^{\circ}$ F and Sensitivity coefficient within 0.02% per $^{\circ}$ F (-65° to $+250^{\circ}$ F). Cryogenic calibration furnished on special order.

Volumetric Displacement: 3×10^{-4} cubic inch, most models.
Acceleration Response:

RANGE	*STATIC	**VIBRATORY	NAT. FREQ.
1 psi	.2%/g	.2%/g	5 KC
10 psi	.05%/g	.04%/g	10 KC
100 psi	.01%/g	.01%/g	25 KC
1,000 psi	.005%/g	.005%/g	over 25 KC

* most sensitive axis
 ** to 2,000 cps

MODEL P1

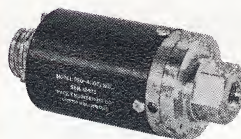
Ranges: ± 0.1 to $\pm 1,000$ psi, Gage, Absolute and Differential.
Maximum Case Pressure: 2,000 psi.
Pressure Media: Corrosive liquids and gases, both sides.
Weight: 14 ounces.
Size: $1\frac{3}{4}$ " dia. x $2\frac{3}{8}$ " long.



Absolute pressure measurement ranges as low as 0-0.1 psia.

MODEL P2

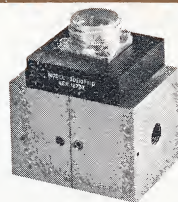
Ranges: 0-200 to 0-10,000 psi, Gage and Absolute.
Pressure Cavity: 416 Stainless exposure standard. Other materials available.
Shock resistant.
Weight: 18 ounces.
Size: $1\frac{3}{4}$ " dia x $3\frac{5}{8}$ " long.



Accepts gummy, dirty and corrosive fluids. Easily disassembled for field cleaning.

MODEL P3D

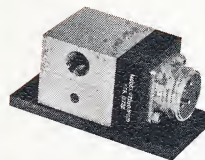
Ranges: ± 0.1 to $\pm 5,000$ psi, differential.
Maximum Line Pressure: 5,000 psi.
Pressure Media: Corrosive liquids and gases, both sides.
Weight: 32 ounces.
Size: $1\frac{23}{32}$ " square x $2\frac{1}{4}$ " long.



Measures low differential pressures at line pressures up to 5,000 psi.

MODEL P7

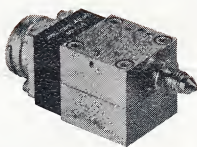
Ranges: ± 0.1 to ± 500 psi, Gage and Differential.
Maximum Line Pressure: 1,000 psi.
Low sensitivity to mechanical shock.
Pressure Media: Corrosive liquids and gases, both sides.
Weight: 12 ounces.
Size: $1\frac{1}{4}$ " x $1\frac{3}{8}$ " x $2\frac{1}{2}$ ".



High Accuracy — Low Cost

MODEL P21

Ranges: ± 1 to $\pm 2,500$ psi, Gage and Differential. 0-3 to 0-2,500 psi, Absolute.
Maximum Line Pressure: 2,500 psi.
Withstands extreme shock and vibration.
Weight: $4\frac{1}{2}$ ounces.
Size: $1\frac{3}{32}$ " square x $1\frac{1}{16}$ " long.



Miniaturized for Aerospace applications.

MODEL P24

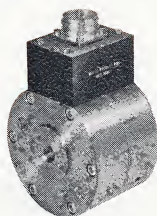
Ranges: 0-15 to 0-5,000 psi, Gage or Absolute.
Pressure Media: Corrosive fluids.
Weight: 5 ounces.
Size: $1\frac{1}{16}$ " — 12 thread, $1\frac{3}{8}$ " x $1\frac{3}{4}$ " long.



Flush diaphragm eliminates interconnecting plumbing.

MODEL P90D

Range: ± 1 inch water full scale, Differential.
Overload Tolerance: 100 psi without damage.
Maximum line pressure: 1,000 psi.
Low acceleration sensitivity.
Pressure Cavity Volume: 10^{-2} cubic inch.
Volumetric Displacement: 10^{-3} cubic inch, full scale.
Weight: 4 lbs.
Size: 3" dia. x 2" deep.



Measures extremely low pressure.

MODEL P96G

Ranges: 0-15,000, 0-25,000, 0-50,000 psig.
Pressure Media: Corrosive liquids and gases.
Shock and overload resistant.
Non-standard ranges available on special order.
Weight: 6 lbs.
Size: $2\frac{1}{2}$ " dia. x $6\frac{1}{4}$ " long.



For measurement and control of extremely high pressure.

DC OUTPUT TRANSDUCERS

PACE DC Output Transducers combine in a single package a variable reluctance pressure transducer and a transistorized carrier-demodulator. This combination makes possible the operational simplicity of DC output while realizing all of the performance advantages of magnetic reluctance

transducers: frequency response, shock and overload resistance, and long life. Most PACE DC Output models operate from unregulated 28 VDC or 115 VAC power and draw less than 1 watt. Low output impedance and high output voltage permit simple connection in most indicating, controlling and telemetry systems.

Ranges: ± 0.1 to $\pm 1,000$ psi, Gage, Absolute and Differential.

Counterpart of Model P1 Pressure Transducer, its applications include fuel flow, tank level, aerodynamic load pressure, altitude and air speed measurement. Weight is approximately 16 ounces, diameter is $1\frac{3}{4}$ " and length is $3\frac{1}{2}$ ".

MODEL CP51



MODEL CP52



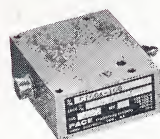
Pressure Ranges from 200 to 10,000 psi, Gage and Absolute. Counterpart of the Model P2 Transducer. Missile applications include pressure measurement of violent oxidizers such as fluorine and liquid oxygen. It is used also to measure hydraulic pressure transients involving high frequencies and accidental overloads. $1\frac{3}{4}$ " diameter x $4\frac{9}{32}$ " long, it weighs 20 ounces.

Ranges from ± 0.1 to $\pm 2,500$ psid. Counterpart of the Model P3D Transducer, it permits precise measurements of small differences between high pressures in hydraulic flow problems. It is used also for transient as well as steady-state measurements. Weighing approximately 32 ounces, it is $1\frac{23}{32}$ " x $2\frac{5}{16}$ " x 3" in size.

MODEL CP53D



MODEL CP60



Ranges of $\pm .5$ to $\pm 2,500$ psi, Gage and Differential; 0-3 to 0-2,500 psi, Absolute. Counterpart of the Model P21 Transducer, its miniaturization permits application in missile, rocket and aircraft installations including aerodynamic and hydraulic pressure measurement in gage and differential models and pressure altitude measurement in absolute models. Weighing 9 ounces, it is $2\frac{5}{8}$ " x $2\frac{1}{4}$ " x 1" in size.

SPECIFICATIONS

Linearity: $\pm \frac{1}{2}\%$ best straight line.

Hysteresis: $\pm \frac{1}{4}\%$ pressure excursion.

Zero shift with line pressure (differential models): Less than 1% full scale.

Power Requirements: Most standard models will operate with 95-125 VAC, 60 to 400 cps, 1 watt, or 25-30 VDC, 20 ma nominal.

Output: 0-5 Volts DC (0-2.5 ma short circuit current) or ± 5 VDC, full scale. Regulated within 1% against input voltage variation.

Output Impedance: 2,000 ohms.

Carrier Frequency: 5 K cps.

Frequency Response: Flat 0-1,000 cps.

Stability: $\pm \frac{1}{2}\%$, long term.

Ripple: 10 mv max., rms.

Temperature: Ambient range -65°F to $+165^{\circ}\text{F}^*$, compensated for zero shift coefficient within 0.01% of full scale per $^{\circ}\text{F}$. Sensitivity coefficient within 0.02% per $^{\circ}\text{F}$.

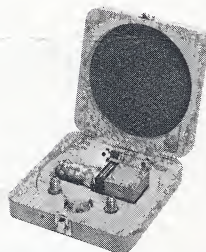
*Special units available with compensation for 250°F maximum ambient.

Volumetric Displacement: 3×10^{-4} cubic inches, full scale.

Vibration: 35 g. 50-2,000 cps.

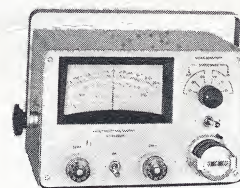
Shock: 100 g any axis. No shift in calibration.

MULTIRANGE TRANSDUCER SYSTEM



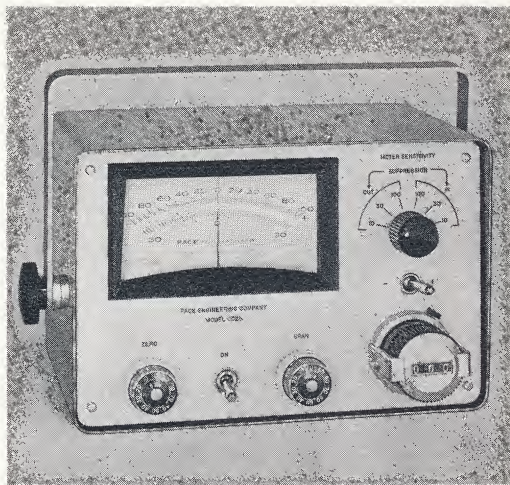
MODEL KP15 PRESSURE TRANSDUCER KIT

Designed for general test laboratory use, the Model KP15 provides multirange capability with the use of interchangeable diaphragms, eliminating the need to stock several individual pressure transducers. Stainless steel construction allows exposure to corrosive liquids and gases, both sides, for differential pressure measurements. It offers accuracy of 1% of reading over the range of 1-500 psi and withstands extreme pressure overloads. It has low sensitivity to mechanical shock. Ranges are ± 1 , ± 5 , ± 25 , ± 100 and ± 500 psi, Gage or Differential. It will operate reliably over an ambient temperature range of -65°F to $+250^{\circ}\text{F}$ at line pressures up to 2,000 psi.



MODEL CD25 TRANSDUCER INDICATOR

The Model CD25 operates with PACE Variable Reluctance Pressure Transducers to provide a direct reading measurement system. The reading appears as a 5" meter indication with $\pm 1\%$ full scale accuracy or as a 3 digit dial reading, using the meter as a null balance indicator. With a separate 10 VDC output, it may be used to indicate and record dynamic as well as static phenomena over the range of 0-1,000 cps. Excitation is 95-125 Volts, 60 cps at 5 watts. The ambient temperature range is 40°F to 120°F and long term stability is $\pm \frac{1}{2}\%$. Weighing 6 lbs., it is 6" high x 9" wide x 6" deep.



TRANSDUCER INDICATOR

- Analog and Digital readout capabilities.
- 1 % Accuracy taut band meter.
- ± 10 VDC full scale output.
- Range of 0 - 1,000 cps for indicating and recording dynamic and static phenomena.

MODEL CD25

The Model CD25 Transducer Indicator operates with Pace Variable Reluctance Transducers to provide a direct reading measurement system. The reading appears as a 5" meter indication with $\pm 1\%$ full scale accuracy or as a 3 digit dial reading, using the meter as a null balance indicator. The Model CD25 also provides a separate ± 10 volt DC full scale output suitable for indicating and recording dynamic as well as static phenomena over the range 0-1000 cps. AC excitation at 5 Kcps is applied to the transducer in a bridge circuit, the transducer output resulting in a bridge unbalance signal which is amplified and demodulated. The carrier-demodulator system is solid state, operates with 115 volt 60 cps power at one watt.

SPECIFICATIONS

Power: * 95-125 Volts 60 cps at 1 watt.

Regulation: $\pm 0.1\%$ of reading.

Sensitivity: Full scale indication corresponds to 20 mv/v transducer input.

Stability: $\pm 1/2\%$ long term.

Indicating Meter: 5" taut band suspension $\pm 1\%$ full scale accuracy.

Meter Scale: Zero center ± 100 , 100 divisions.
Zero center ± 30 , 60 divisions.

Temperature Range: 40°F to 120°F.

Installation Details: See drawing.

Weight: 6 Lbs.

External Output:

Level: ± 10 volts DC full scale, may be suppressed to zero with suppression control.

Impedance: 100 ohms nominal.

Frequency Response: Flat 0-1000 cps within $\pm 5\%$.

Ripple: 10 mv rms, max.

Controls:

Meter Sensitivity Switch: 100%, 30%, 10% transducer output = full scale. 100%, 30%, 10% = full scale with suppression circuit actuated.

Zero adjustment: 10 turn potentiometer with dial reading to 3 figures.

Span adjustment: 10 turn potentiometer with dial reading to 3 figures.

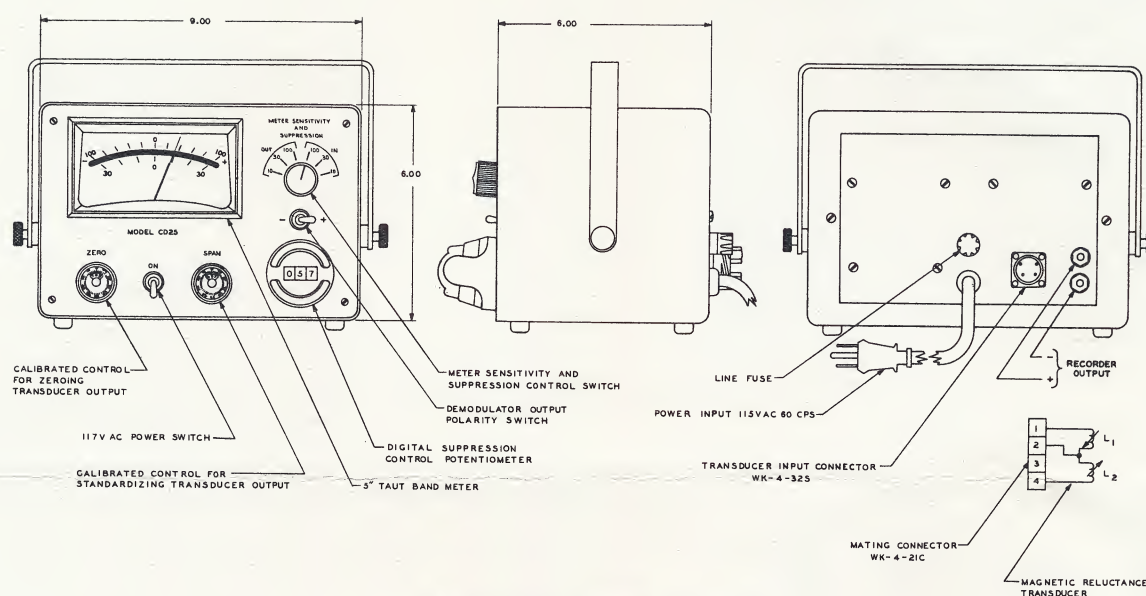
Suppression adjustment: 10 turn potentiometer with 3 digit reading.
(Also used as readout in null balance operating mode)

Polarity Switch: Reverses demodulator output to allow suppression of negative transducer signals.

**Battery powered model available on special order.*

INSTALLATION DRAWING

Model CD25 Transducer Indicator



OPERATING INSTRUCTIONS

MODEL CD25 TRANSDUCER INDICATOR

The transducer cable connection is made at the rear panel, referring to wiring diagram in drawing. 115 Volt power is applied. The meter sensitivity switch is turned to the "100, suppression out" position and zero and span controls turned to midscale, 50.0. The power switch is placed in the "ON" position and the zero adjusted for zero meter reading. The transducer is brought to the appropriate full scale output for calibration. For example, a 0-50 psi range pressure transducer would be connected to a pressure source monitored at 50 psi with a dead weight tester or precision gage.

With the polarity switch in the plus position the span control is now turned to produce the desired full scale reading. This might be 100 for "percent full scale" indication, or 50 for indication in units of psi. Zero and span adjustment readings may now be recorded and used to avoid the necessity for recalibration in setting up the equipment at a later date. If the meter scale now reads directly in psi units with the sensitivity switch in the "100" position, it will also read in psi units in the "30" and "10" positions.

With the meter switch in any of the "suppression in" positions, the suppression control in the lower right corner of the panel becomes effective. It is turned to restore the meter pointer to the zero position, its reading then corresponding to the initial

meter deflection. Final adjustment should be made with the meter sensitivity switch in the "10, suppression in" position. In the above example, with 50 psi applied the suppression control would read 50.0, corresponding to meter null. Precise calibration with the span control would be made in this manner rather than by the meter deflection method. If the transducer measured differential pressure, and the pressure were reversed, it would be necessary to switch to the negative position for this procedure.

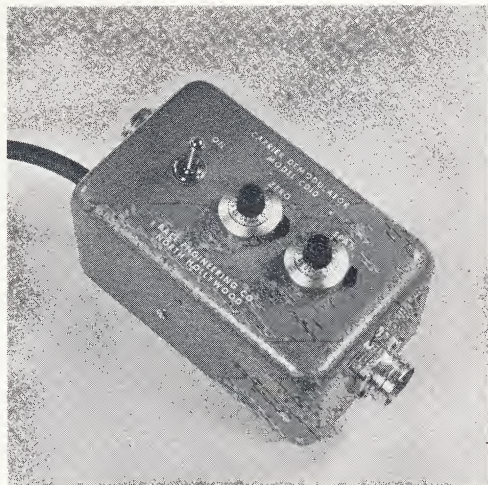
To measure small pressure fluctuations, for example ± 5 psi in the neighborhood of 60 psi, the suppression control may be turned to read 60.0 and the meter sensitivity switch "10 suppression in". The fluctuation readings then appear as pointer movements between -50 and +50 on the upper meter scale.

For remote indication and recording, external output connections are made at the two terminals on the rear panel. The external output circuit is isolated to allow simultaneous operation of the Model CD25 meter and the remote device. The Model CD25 meter indicates the external output voltage and reads ± 10 volts full scale with the sensitivity switch in either "100" position, ± 3 volts in either "30" position, and ± 1 volt in either "10" position. The suppression control circuit is active in the "suppression in" position.

REPRESENTED BY

PACE engineering company
13035 Satcoy Street North Hollywood, California
Telephone: 213-877-0727 TWX: 213-765-5299

PACE



CARRIER-DEMODULATOR

DC OUTPUT

- **Output** — 0 -10 V DC, operating with Pace Transducers.
- **Compact** — mounts inside Recorder.
- **Regulated against Line Voltage Variation.**
- **Transistorized for reliability.**

MODEL CD10

The Model CD10 Miniature Carrier-Demodulator, designed for operation on 95-125 volts, 60 cps at 1 watt, operates with PACE Variable Reluctance Transducers in DC systems. Excitation of 5 K cps is applied to a bridge including the two inductance ratio arms of the transducer. A solid-state amplifier and demodulator converts the bridge output to DC. Response is flat to 1,000 cps. Small enough to be included in the case of most receiving and recording instruments, the Model CD10 is regulated against input voltage variation and will operate reliably over an ambient range of 40°F to 120°F.

SPECIFICATIONS

Power Requirements: 95-125 Volts, 60 cps at 1 watt.

Output: 0-10 VDC (0-2.5 ma short circuit current) or ± 10 VDC full scale. Regulated against input voltage variation.

Output Impedance: 2,000 ohms, nominal.

Carrier Frequency: 5 K cps.

Frequency Response: Flat 0-1,000 cps, within $\pm 5\%$.

Stability: $\pm 1/2\%$, long term.

Ripple: 10 mv max. rms.

Temperature Range: 40°F to 120°F.

Ambient Thermal Effect: Zero, .01%/°F.
Gain, .02%/°F.

Installation Details: See drawing on back.

Weight: 18 ounces.

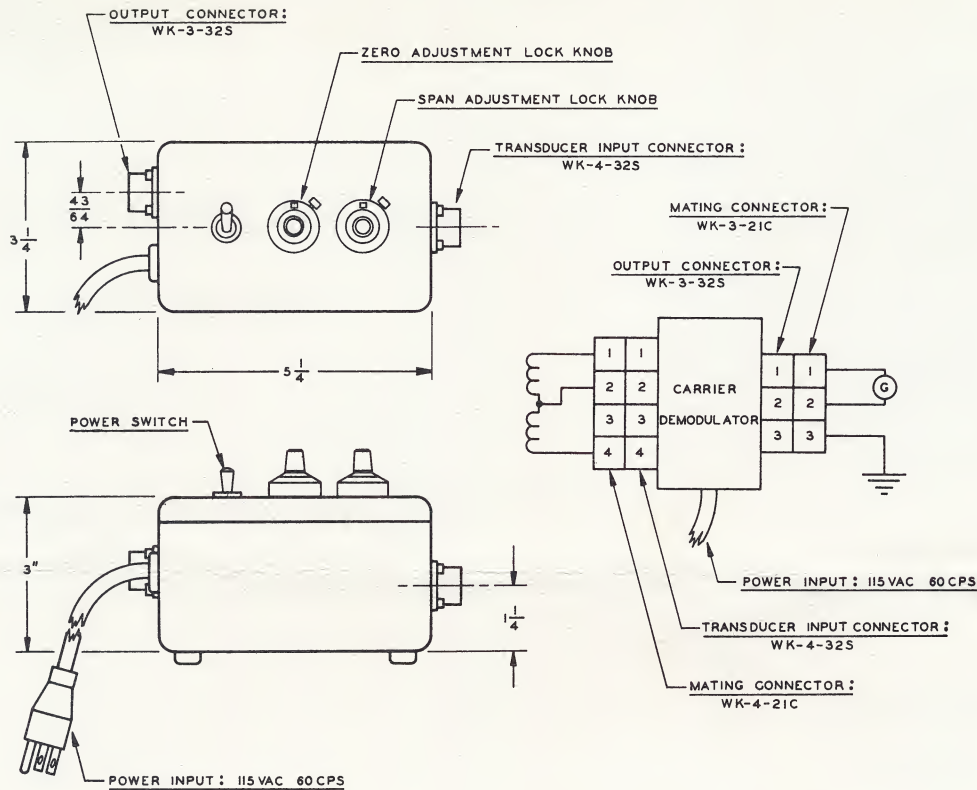
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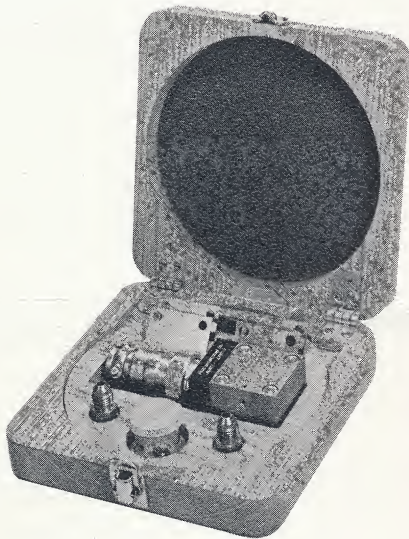
TWX 213-765-5299

INSTALLATION DRAWING **Model CD10 Carrier Demodulator**



Design improvements may be made without prior announcement.
For Models to meet special requirements, consult our Engineering staff.
Collect calls will be accepted for application and engineering assistance.

Model KP15 Pressure Transducer Kit



When used in conjunction with the Model C10 Carrier-Demodulator, the PACE Model KP15 Pressure Transducer Kit provides users with a complete transducer test laboratory. Featuring Accuracy of 1% of Reading from 1 to 500 psi, differential or gage, the Model KP15 Transducer Kit includes a PACE Model P15 Pressure Transducer rated at 2000 psi maximum line pressure, five bi-directional, interchangeable diaphragms with ranges of ± 1 , ± 5 , ± 25 , ± 100 and ± 500 psi, wrenches and accessory fittings. Its split body design permits simple disassembly (only four bolts) diaphragm replacement and reassembly. Designed for use with corrosive liquids and gases, both sides, it incorporates vent valves to facilitate complete liquid filling for dynamic measurement. The variable reluctance type transducer kit, intended for general test laboratory use, eliminates the need to stock several individual transducers. Detailed information on the Model KP15 Pressure Transducer Kit is included in the complete PACE Catalog, available on request.

REPRESENTED BY

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North Hollywood, California

TWX 213-765-5299

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PACE

PRESSURE TRANSDUCER KIT

1 % Reading Accuracy, 1 - 500 psi.

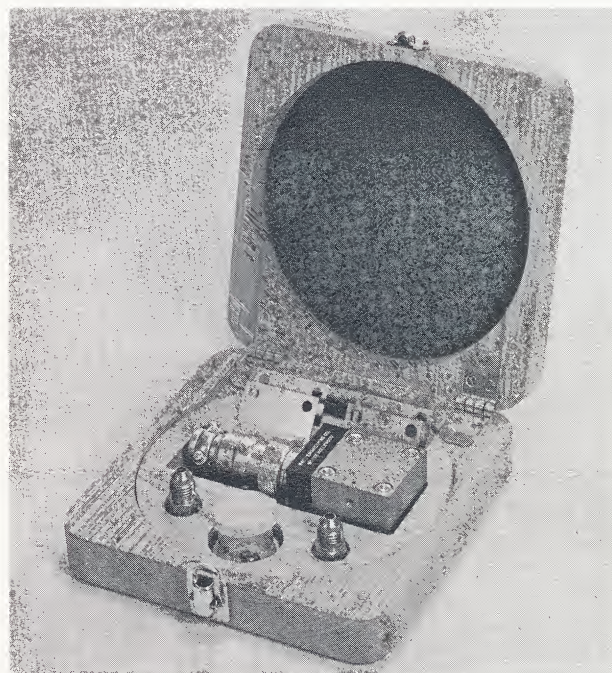
Ranges of ± 1 , ± 5 , ± 25 , ± 100 , ± 500 psi; Gage or Differential.

Withstands extreme pressure overloads.

High natural frequency.

Accepts corrosive liquids and gases, both sides.

Low sensitivity to mechanical shock.



MODEL KP15

The Model KP15 Pressure Transducer Kit, intended for general test laboratory use, provides multirange capability with the use of interchangeable diaphragms, eliminating the need to stock several individual pressure transducers. The transducer is a typical PACE split body design, in which pressure is sensed through the deflection of a flat magnetic stainless diaphragm located between two magnetic pickoff coil assemblies potted one in each of the body halves. Motion of the diaphragm results in change in inductance ratio between the pickoff coils and the effect is utilized in a bridge circuit to produce an output voltage proportional to pressure.

The instrument is easily disassembled for diaphragm replacement by removing four bolts. Hardwood case, wrenches, spare seals and accessories are included in the kit. Stainless steel construction allows exposure to corrosive liquids and gases on both sides for differential pressure applications. Vent valves facilitate complete liquid filling for dynamic measurement. The transducer operates with carrier systems, including the PACE Model CD10 with 10 volt DC output, and the PACE Model CD25 meter readout type.

SPECIFICATIONS

Ranges: ± 1 , ± 5 , ± 25 , ± 100 , ± 500 psi,
Gage or Differential.

Linearity: $\pm \frac{1}{2}$ % best straight line.

Hysteresis: $\pm \frac{1}{4}$ % pressure excursion.

Overpressure: 200 psi or 200 % range,
whichever is greater.

Line Pressure: 2,000 psi maximum.

Output: 50 mv/v full scale at 3,000 cps.

Inductance: 20 mh nominal, each coil,
zero balance within 10 % full scale.

Excitation: 1,000-20,000 cps.
30 volts max. at 3000 cps.

Pressure Media: Corrosive liquids
and gases, both sides.

Temperature: Ambient range -65° to 250° F.
Zero shift coefficient within 0.01 % of
full scale per $^{\circ}$ F. Sensitivity coefficient
within 0.02 % per $^{\circ}$ F.

Pressure Cavity Volume: 4×10^{-3} cubic inch.

Volumetric Displacement: 3×10^{-4} cubic inch,
full scale.

Acceleration Response, most sensitive axis:

Range	Static	Vibratory	Nat. Freq.
± 1 psi	.2 %/g	.2 %/g	5 Kcps
± 5 psi	.06 %/g	.06 %/g	8 Kcps
± 25 psi	.02 %/g	.02 %/g	14 Kcps
± 100 psi	.01 %/g	.01 %/g	25 Kcps
± 500 psi	.003 %/g	.003 %/g	40 Kcps

Installation Details: See drawing on back.

PACE engineering company

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TWX 213-765-5299

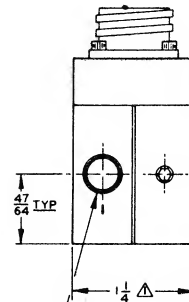
INSTALLATION DRAWING

Model KP15 Pressure Transducer Kit

ACCESSORY AND SPARE PARTS LISTS

DESCRIPTION	QTY.
HEX SOCKET WRENCH - $\frac{5}{64}$ ACROSS FLATS	1
SPLINE SOCKET WRENCH .183 DIA. - BRISTOL NO. 5-183	1
O'RING - PARKER 2-24 COMPOUND BUNA-N 219-7	2
DIAPHRAGMS (EACH IDENTIFIED FOR RANGE)	4
AN816-2C NIPPLE-FLARED TUBE AND PIPE THREAD ($\frac{1}{8}$ PIPE TO $\frac{1}{8}$ O.D. TUBING)	2
AN816-4C NIPPLE-FLARED TUBE AND PIPE THREAD ($\frac{1}{8}$ PIPE TO $\frac{1}{4}$ O.D. TUBING)	2
ELECTRICAL CONNECTOR PLUG - CANNON WK-4-21C- $\frac{3}{8}$	1
BLEED SCREW - PACE PART NO. 4001-3 (18-8 SST.)	2
GASKET, BLEED SCREW - PACE PART NO. 4002-1 (TEFLON)	2

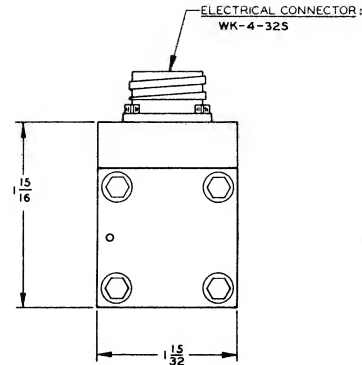
TOLERANCE: UNLESS NOTED $\pm \frac{1}{16}$



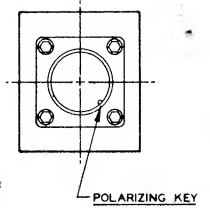
NEGATIVE PRESSURE PORT:
 $\frac{1}{8}$ -27NPT

NOTE

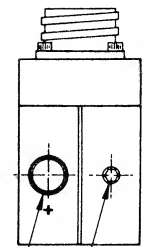
Δ THIS DIMENSION VARIES WITH PRESSURE RANGE.
2 POSITIVE PRESSURE INCREASES L_2 AND DECREASES L_1 .



ELECTRICAL CONNECTOR:
WK-4-32S

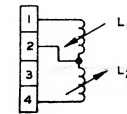


POLARIZING KEY



BLEED SCREW - 2 PLACES

POSITIVE PRESSURE PORT:
 $\frac{1}{8}$ -27NPT



INSTRUCTIONS FOR DIAPHRAGM REPLACEMENT

Model KP15 Pressure Transducer

To replace the diaphragm, the transducer may be disassembled by removing the four #10-32 Bristol Spline type cap screws. The body blocks are then separated and the diaphragm is removed and replaced with the new one. Screws are replaced and gradually tightened in rotation to a maximum torque of about 20 in. lbs. (This value is not critical). The working area should be reasonably clean to avoid inclusion of material particles between the body blocks and the diaphragm, which might prevent proper clamping and introduce hysteresis effects.

The diaphragm is sealed against the body on each side with an O ring, which may stick to the diaphragm on removal. If this should hap-

pen the block may be opened further, exposing the grooves in which the O rings should be installed prior to installation of the new diaphragm. Bleed screws in the body halves of the Model KP15 permit expulsion of air in filling with liquid. Also these may be used for flushing and drying when changing from liquid to gaseous working fluids. In operating with gases the internal cavities must be dry. Drop-lets between the diaphragm and case are capable of causing surface tension effects noticeable in measuring very low pressures.

After assembly, the instrument may be calibrated against a pressure standard appropriate for the pressure range.

Design improvements may be made without prior announcement.

For Models to meet Special Requirements, consult our Engineering staff. Collect calls will be accepted for application and engineering assistance.

REPRESENTED BY

PACE engineering company

13035 Satcoy Street
TWX 213-765-5299

North Hollywood, California
TRiangle 7-0727

RE: Your inquiry through
ELECTRONIC PRODUCTS

ATTENTION: Mr. T. H. Nelson

A bulletin is enclosed on the Model KP15 Pressure Transducer Kit, along with a sheet on the Model CD25 Transducer Indicator, a recent addition to our product line. Both are available from stock.

The Model CD25 Transducer Indicator is priced at \$400.00, and the Model KP15 Pressure Transducer Kit at \$375.00.

For users who do not need the readout feature the basic Model CD10 Carrier-Demodulator, without indicator, as described in the enclosed sheet, is also stocked at \$300.00 each.

We shall be happy to send you a catalog describing our complete instrumentation line.

PACE *engineering company*

13035 Saticoy Street, North Hollywood, California 91605

Phone: 213-877-0727

Twx: 213-765-5299